Economic Growth through University R&D

presented to

Governor's Commission on Higher Education Reform, Innovation and Investment

by

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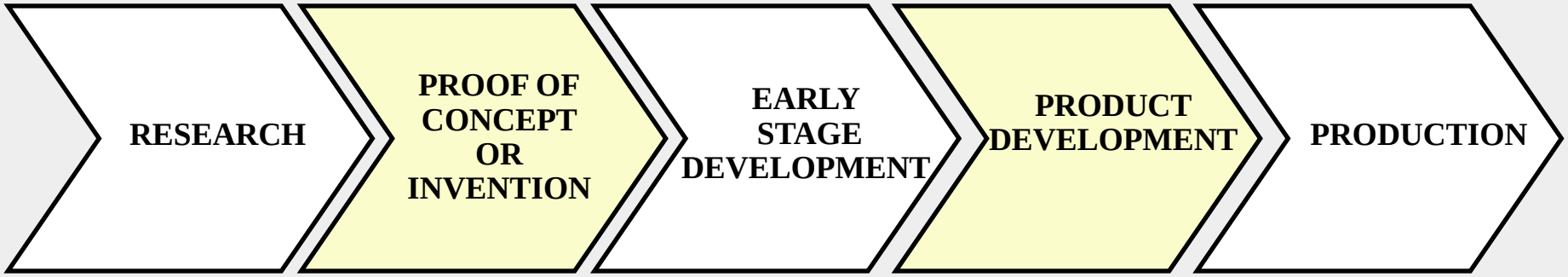
R&D Relationship to Economic Development



R&D Planning Initiatives

State Council of Higher Education for Virginia

- Focus areas of research
  - Thematic research areas
  - $45M / year state investment + $15M cost share
  - Regularly report metrics
- Invest in infrastructure
  - Funding and policy to attract faculty / student talent
  - Allow targeted 100% GF research projects
  - Maintain Higher Education Equipment Trust Fund

Source: The 2007-13 Strategic Plan for Higher Education in Virginia

R&D Planning Initiatives

Virginia Research & Technology Advisory Commission

- Issued seven reports, 2000-9
  - Accelerate commercialization of university research
  - Improve intellectual property (IP) policies
  - Incubate new high-tech industry
  - Spur investment in early-stage companies
  - Align state's R&D investments, measure outcomes

R&D Planning Initiatives

Innovation & Entrepreneurship Investment Authority (IEIA) / Innovative Technology Authority (ITA) / Center for Innovative Technology (CIT)

- Increase university R&D capabilities
  - Center for Power Electronics Systems, Virginia Tech
- Catalyze industry / university collaboration
  - R&D, internships, strategic planning
- Implement statewide, long-term strategy
  - Commonwealth Innovation Index
- Commercialize IP
  - University spin-outs

R&D Planning Initiatives

Governor Warner's Steering Committee (2003)

- Strategic approach to advocacy and investments
  - Coordinate advocacy, collaboration
  - Differentiate investment strategies
- Create R&D investment pool
  - $100M per biennium
- Establish supportive policies / regulations

Commonwealth Research Commercialization Fund*

- Created in 2000 General Assembly Session
- Goals
  - Leverage federal & private funding
  - Drive technological & economic outcomes
  - Foster collaboration & align capabilities
- Investments
  - 2001-3: $24.6M in 12 projects
  - 2008: $1.8M in 6 projects
  - Not funded in FY11-12 budgets

*Formerly Commonwealth Technology Research Fund

Academic R&D Expenditures

FY2007 / FY2008 Total and Federal R&D Expenditures ($ 000)								
Institution	**Total R&D Expenditures 2008 ($ 000)**	**2008 Ranking**	**Total R&D Expenditures 2007 ($ 000)**	**2007 Ranking**	**Federal R&D Expenditures 2008 ($ 000)**	**2008 Ranking**	**Federal R&D Expenditures 2007 ($ 000)**	**2007 Ranking**
VA Tech	373,281	46	366,960	42	135,578	72	128,796	74
UVA	257,651	70	229,653	75	219,429	48	198,256	51
VCU	148,655	108	134,453	111	95,369	104	90,137	104
GMU	72,542	151	58,252	159	50,392	139	46,588	143
ODU	66,538	156	52,134	167	28,298	172	25,694	174
CWM	55,090	169	49,854	171	25,645	175	25,983	173
Total Virginia	1,052,601	15	971,377	15	612,974	16	579,757	17

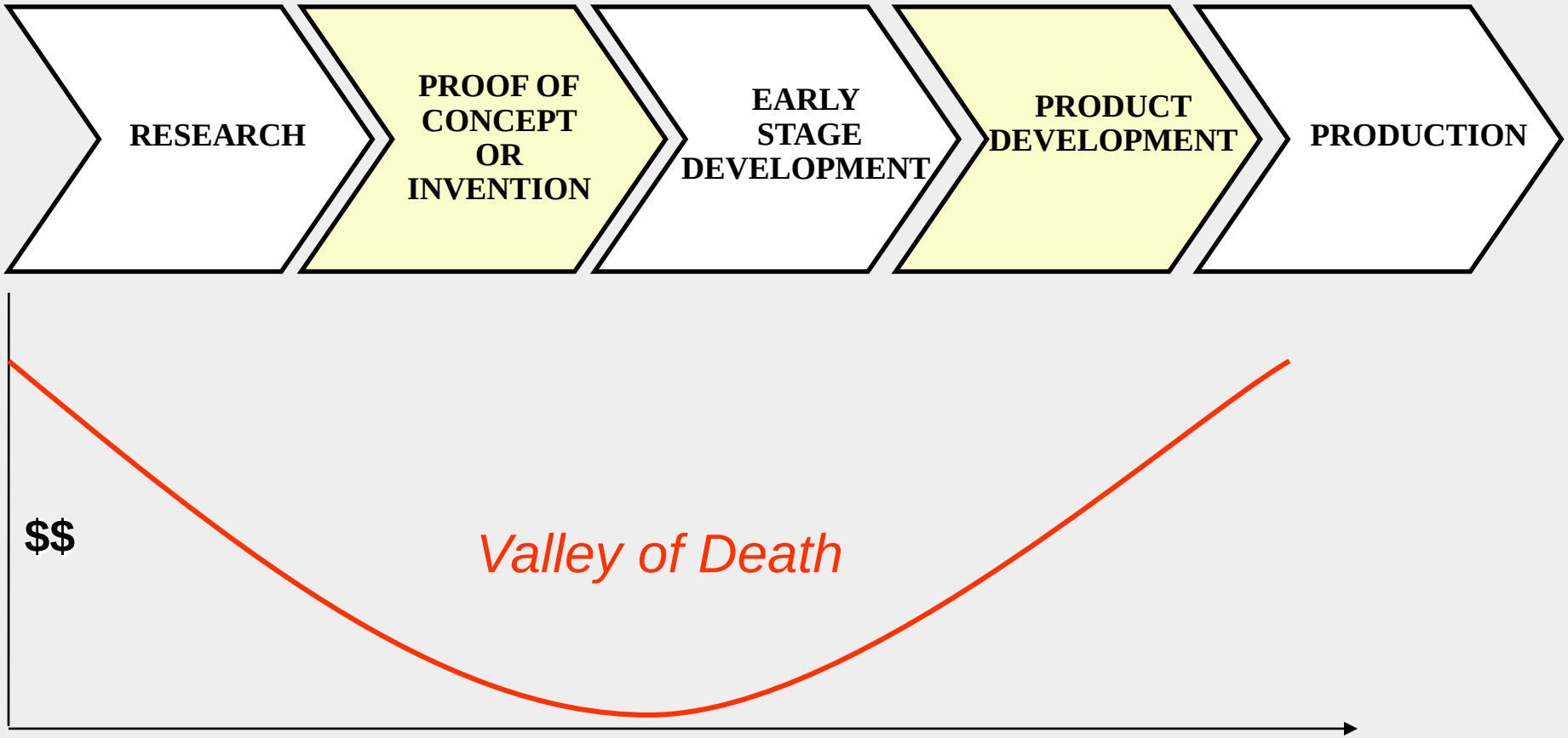
Source: National Science Foundation

Academic R&D Expenditures (cont'd)

FY2008 R&D Expenditures by Science & Engineering Field ($ 000)							
Institution	**Total R&D Expenditures 2008**	**Engineering**	**Environmental Sciences**	**Life Sciences**	**Math & Computer Sciences**	**Physical Sciences**	**Sciences, nec**
VA Tech	373,281	152,049	7,257	165,736	16,244	16,705	1,277
UVA	257,651	38,725	4,492	180,438	7,380	17,691	756
VCU	148,655	5,278	960	125,604	2,050	4,610	0
GMU	72,542	6,553	7,564	8,826	14,038	5,788	0
ODU	66,538	32,855	6,653	8,497	4,936	8,618	167
CWM	55,090	0	35,053	3100	966	5,452	7,525
Total Virginia	1,052,601	239,468	74,010	534,167	49,531	72,666	11,307

Source: National Science Foundation

R&D and Commercialization



University R&D Spin-Outs

GAP Portfolio

George Mason University
- Secure Command

University of Virginia
- Global Cell Solutions
- Soft Tissue Regeneration
- Tau Therapeutics

Virginia Tech
- Airak
- Miserware
- NBE
- Piedmont BioProducts

2010 Pipeline

George Mason University
- Server security technology to reduce threat of malware attacks on web servers.

University of Virginia
- Provider of chemical ingredient toxicological hazard and risk assessment.

Virginia Tech
- Therapeutics for diabetes and related complications.
- Platform for development of molecular tests for infectious diseases.
- Novel access system for entry into the pericardial space for treatment of cardiac arrhythmias.

IEIA / CIT R&D Planning Initiative

- 2009 legislation – establish statewide R&D plan
- Origin of legislation
  - GA request for improved R&D investment tool
  - GA desire to integrate university and community planning tools
- Status of plan
  - CIT board committee established
  - Expressed desire to synchronize CIT process with Commission objectives

Closing Comments

- Virginia R&D does produce discovery that initiates new products and company formation, *but* an equally (or more) important contribution is R&D's educational value

- Well-funded R&D states are well-coordinated in their pursuit of federal funds; Virginia would benefit from a uniform strategic planning process

- Policy initiatives need to be different for organizations that deliver over $50M in annual expenditures